

## DIFFERENTIATED APPLICATION OF NITROGEN AND PHOSPHORUS CAN CAUSE PHYSIOLOGICAL TRAITS IN MAIZE

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### ABSTRACT

*Through this paper, aims to effect fertilizers with nitrogen and phosphorus applied differently in two maize hybrids using, watching their influences on physiological traits in maize. Establishing experimental groups was performed using two systems in 2013: irrigated and non-irrigated, which were studied by several methods conducted field and laboratory, their physiological characteristics.*

*Hybrids in the study Danubiu Minerva and grown under the same conditions behaved differently in terms of technology, culture, values recorded in being physiologically different each using the right level of fertilizer.*

*They studied the effects of irrigation with simultaneous application of variable doses of fertilizers and their effect on major physiological processes that are dependent on them.*

### INTRODUCTION

The main factors that contributed to the development of agriculture in the last half-century has been creating varieties and hybrids with high bioconversion of solar energy, development of production and consumption of mineral fertilizers, avoiding crop loss by pest and disease control, better technology Robotics and maintenance of cultivated soils.

Corn is rightfully considered one of today's crop of utmost importance in our country's agriculture, as the world due to both significant area they occupy and high yields per hectare are obtained.

Due to the large capacity of this culture to adapt to climatic and soil and due process vast improvement, maize culture in our country has an area of distribution that ensures satisfaction in every county, and in many counties - primarily in south and west - can achieve significant availability for the needs of the national economy.

Setting the important role of irrigation and the application of nitrogen and phosphorus in varying doses coming to substantiate the physiological contribution of each factor to make production quantitatively and qualitatively superior to corn.

### MATERIAL AND METHOD

Experience has been placed in Olt County, in the village Dobroteasa on a ground faeziom, using two corn hybrids, one early and one late Minerva Danubiu a number of 50.000 plants / ha under the influence of different doses of N<sub>60</sub>P<sub>40</sub>- N<sub>120</sub>P<sub>100</sub>, irrigated and non-irrigated system. Determining the quality of maize was carried out by various methods laboratory and the field.

Field methods performed to determine the quality of maize caused by biometrics.

- The number of plants / plot
- Date blooming
- Date of blooming

- uniformity of blooming
- Plant height
- insertion height of the ears
- The number of drought-resistant plants
- Duration physiological of blooming
- The number of premature dried plants
- Note the plants to maturity
- Number of broken plants

## RESULTS AND DISCUSSIONS

When the two plants corn hybrids reached physiological maturity were made more biometric measurements.

**Table 1**

**Physiological characteristics of corn plants. 2013**

Hybrid	Irrigation system	Nr. pLants/plots	Date of flowering	Date of blooming	Uniformity of blooming	Plant height	Height of insertion ears	Nr. Drought-resistant plants	Physiological măturător period	Nr. Dried plants prematurely	Note plant maturity	Number fallen plant	Broken plants number
Minerva	Non-irrigated	52	15.07	22.07	6	172	70	6	11.09	0	0	0	4
	Irrigated	78	15.07	17.07	9	207	74	8	1.09	4	8	0	4
Danubiu	Non-irrigated	49	25.07	29.07	7	157	59	8	19.09	0	0	0	3
	Irrigated	67	17.07	19.07	9	186	85	8	27.09	2	8	0	0

**Table 2**

**Physiological characteristics of maize plants and the grades according to certain indicators. 2013**

Hybrid	Irrigation system	Note the general appearance of the plant	Number of harvested plants	Number of sterile plants	NumBerceanu cobarât absence	Number cobs harvested	Note plants resistant to Fusarium	Note to wedding grain	Note the consistent grain	Note the appearance of the ear	Note overall	Grain yield	Grain moisture at harvest
Minerva	Non-irrigated	4	56	1	0	57	9	8	8	6	6	77	16
	Irrigated	7	68	1	0	68	8	9	8	7	7	78	25
Danubiu	Non-irrigated	9	44	0	0	46	8	8	8	9	8	79	19
	Irrigated	7	68	0	0	68	8	9	9	8	8	83	20

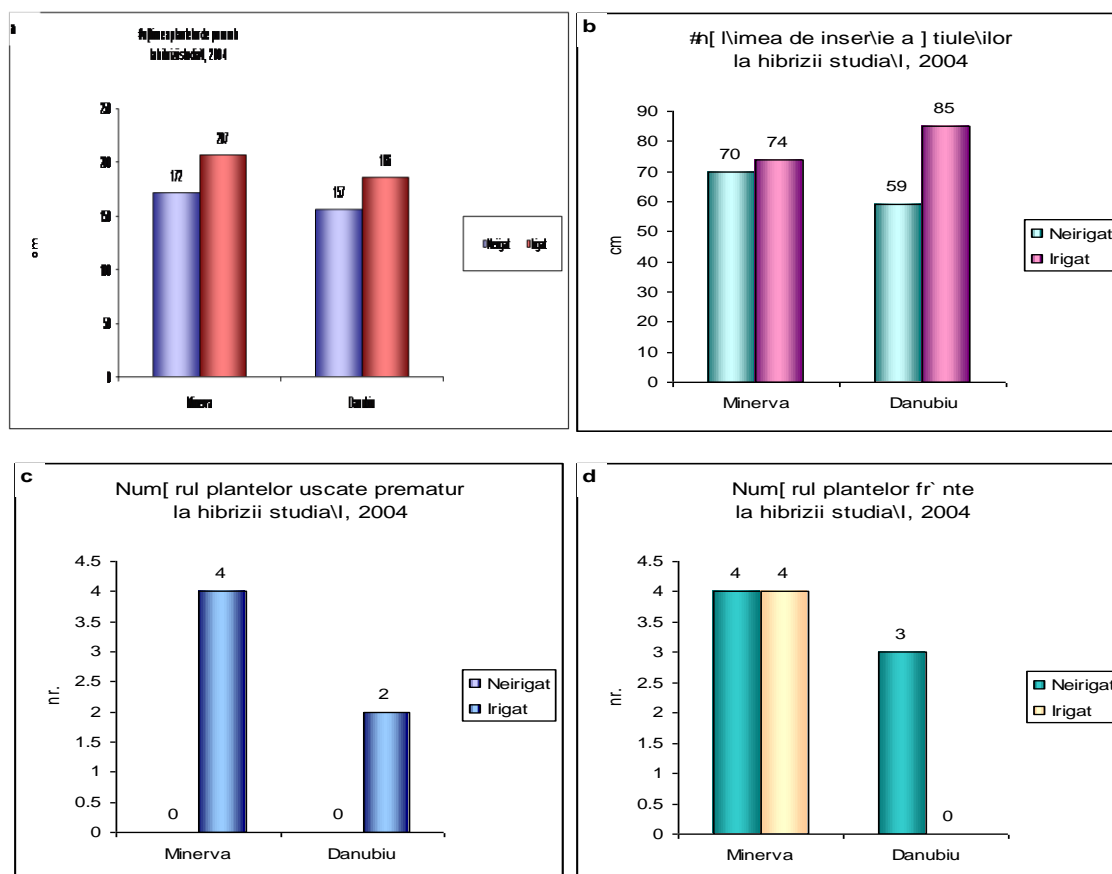


Figure 1. General characteristics of hybrids of corn for grain and Danubiu Minerva. 2013

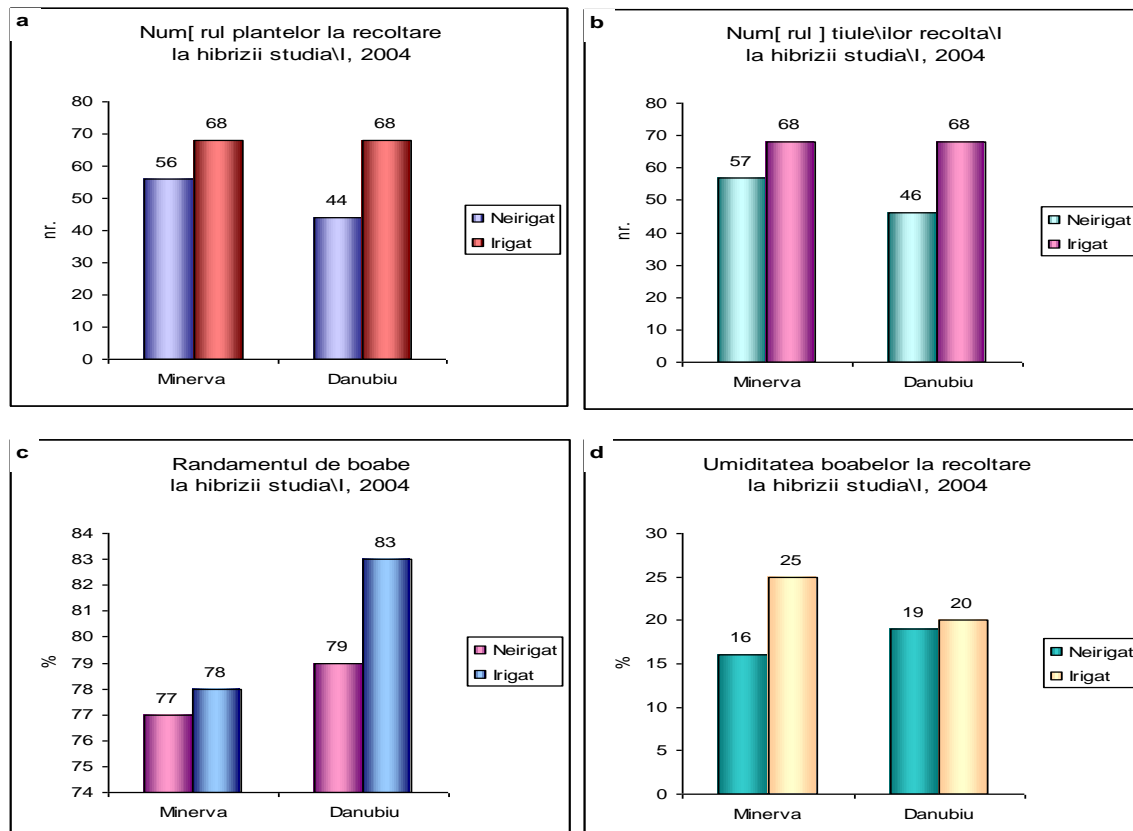


Figure 2. General characteristics of hybrids of corn for grain and Danubiu Minerva. 2013

Mathematical calculation used in the interpretation of experimental results. Significance tests measured, but not eliminate, the risk of obtaining incorrect interpretation of experimental results. Studies on the relationship between variables can be done using modern statistical methods such as correlation, simple linear regression, quadratic regression, etc. The correlation coefficient is a relative measure that does not depend on the units employed for those variations.

$$r = (s_{xy}^2) / \sqrt{s_x^2 \cdot s_y^2} = s_{xy} / s_x \cdot s_y \quad (1)$$

$$y = a + bx + cx^2 \quad (2)$$

In addition to analysis of variance and calculation of quadratic regression was used with column diagrams-graphical expression.

## CONCLUSIONS

- Hybrids in the study Danubiu Minerva and grown under the same conditions behaved differently in terms of technology, culture, values recorded in being physiologically different each using the right level of fertilizer.
- They studied the effects of irrigation with simultaneous application of variable doses of fertilizers and their effect on major physiological processes that are dependent on them.
- All physiological processes analyzed to conclude that the hybrid has the potential physiological and biochemical Minerva higher percentage data obtained exceeding 10-15% values obtained hybrid Danubiu.
- Recommendations for hybrid production Danubiu, under irrigation, applying maximum dose of  $N_{120}P_{100}$  and for economic efficiency  $N_{100}P_{80}$ .

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